



December 18, 2003

Donna A. Bergman-Tabbert, Director  
Office of Land and Site Management  
U.S. Department of Energy  
Grand Junction Office  
2597 B 3/4 Road  
Grand Junction Co. 81503

Re: Cotter Corporation Canon City Milling Facility  
Colorado Radioactive Materials License 369-01

Dear Ms Bergman-Tabbert,

Cotter Corporation is responding to an information request from the U.S. Environmental Protection Agency's Region 8 Office relative to an "Off-Site Rule [OSR] Determination". In a letter dated September 29, 2003 the EPA informed Cotter that in order to resolve a remaining issue Cotter should obtain a letter from the Department of Energy regarding future transfer of Cotter's tailing repository to the Government. In particular (and in order to resolve the issue), the EPA noted a waste stream from Cotter's vanadium "redcake" processing circuit and needs assurance that non-11e.(2) activities will not inhibit transfer of the 11e.(2) repository at closure. This particular waste stream consists of air emissions control (wet scrubber) bleed solutions from a vanadium fusion process and is not a hazardous waste. The feed material (vanadium "redcake") is fired in Cotter's decomposition and fusion furnaces as a means of removing sulfur. The fused product is then packaged and transferred to other facilities for further processing. The receipt and processing of vanadium "redcake" was approved in July, 2001 by the Colorado Department of Public Health and Environment's Laboratory and Radiation Services Division (see attached approval letter-Attachment A).

For Completeness, Cotter has compiled and presents below information regarding its impoundments contents and requests a letter from the Department of Energy indicating that the materials currently contained in Cotter's impoundments will not inhibit transfer of the 11e.(2) repository to the Government.

### **Historical Perspective and Impoundment Contents**

In the mid-1950's Cotter Corporation obtained access to former coal mining and grazing lands located in Fremont County Colorado and in particular on Section 16, Township 19 South, Range 70 West of the 6<sup>th</sup> Principal Meridian. The purpose of obtaining this access was to build a small custom metal mill for the extraction and beneficiation of Uranium. As such, Cotter's Source Material License Application was prepared, and in 1958 the U.S.

Atomic Energy Commission (AEC) licensed the Company to concentrate uranium. The State of Colorado assumed Licensing authority by means of an Agreement State status in 1969. The Canon City Milling Facility and its operations have been licensed continuously since its 1958 plant startup.

The newly constructed alkaline leach facility was small in scale with the ability to process 50 tons-per-day. While this original mill operated for the most part as an alkaline facility, some acid-leach operations were employed as well. As milling operations proceeded the Mill processing rate was increased over time, eventually achieving a production rate of 400 tons per day. While feedstock to the "Old Mill" was principally natural ore from the Schwartzwalder Mine, recycling of tailings from other milling facilities ("alternate feed") was conducted as well. Other co-product metals recovery operations were also employed in the "Old Mill" where copper, selenium, nickel, molybdenum and cobalt extraction, as well as the concentration of rare nuclides, were conducted. With the exception of 246 tons of milling residues, where only molybdenum was recovered, uranium extraction occurred in parallel with co-product recovery.

By the late 1970's Cotter had acquired significant mining interests on the Colorado plateau, warranting the need to design and construct a new acid-leach uranium milling facility. The "New Mill" was specifically suited for higher production Western slope operations and ore which contained both uranium and vanadium, thus necessitating acid-leach technology and more sophisticated solvent extraction capabilities. As such, a new 1200 ton-per-day mill and lined tailing impoundments were constructed with production activities underway by 1979. Also during the mid to late 1970's, Cotter built and operated a metals recovery plant on the site where spent petroleum catalyst materials were recycled for the recovery of molybdenum, nickel, copper, tungsten, vanadium and cobalt. The catalyst materials consisted of various shaped ceramic substrate objects impregnated with the metals which were targeted for recovery by Cotter's recycling operation. The tailings generated by the pre-1979 operations were transferred to a lined impoundment (i.e. secondary impoundment) during the period of 1981 through 1983.

The new acid mill circuit was operated as a whole until 1987 when, due to depressed market conditions, it was placed in "standby status". However, as a means of further uranium recovery, tailing solutions were recycled through portions of the plant during 1991 and 1992. Final concentration and drying of the recovered yellowcake product was completed later in December of 1994 and January of 1995.

Subsequent to the 1997 renewal of its license, Cotter completed an authorized conversion of the "New Mill" to once again accommodate alkaline leaching operations. The conversion allowed for the processing of approximately 100,000 tons of high-grade uranium ore which had been extracted from the Schwartzwalder Mine near Golden, Colorado. That processing occurred between April of 1999 and November 2000. In addition to this conversion, Cotter was authorized in 2000 to receive Uranium/Zirconium ores; and in 2001 to complete additional construction modifications for the recovery of Zirconium as a co-product from those ores. The vanadium "redcake" operation referred to above was operated as an initial test in 2001 and has not operated since.

In addition to its conventional milling and recycling ("alternate feed") activities, Cotter has been previously authorized to direct dispose certain 11.e.(2) materials at the facility. These materials were generated from Company soils cleanup operations as well as other commercial uranium tailings cleanup projects.

The Canon City Milling Facility's entire tailing repository is known as the Main Impoundment. The Main Impoundment consists of two separate repositories; the Primary Impoundment and the Secondary Impoundment. The Primary Impoundment serves as the operating cell and the Secondary Impoundment holds the transferred tailings from pre-1979 activities, as well as a small solid waste disposal area for site generated trash and surface contaminated objects. The contents of these impoundments are attached for your review (see Attachment B). It should be noted that non-uranium recovery waste streams constitute less than 1% of the current repository, are non-RCRA materials and pose no jurisdictional issues which would inhibit transfer to the Government.

Please respond at your earliest convenience to Cotter's request and confirm the current tailings impoundment contents will not inhibit transfer of 11.e(2) repository to the Government.

If you should have any questions regarding this matter, please contact me.

Sincerely,



Steven D. Landau  
Manager, Environmental Affairs

## STATE OF COLORADO

Bill Owens, Governor  
Jane E. Norton, Executive Director

*Dedicated to protecting and improving the health and environment of the people of Colorado*

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Subject: Acceptance of Information Requested Regarding Vanadium Pilot Project

Based on Cotter Corporation representations in the submittals dated November 29, 2000, May 10, 2001, and June 12, 2001, Division staff have determined that the Vanadium Pilot Project is within the existing authorizations of Colorado Radioactive Material License No. 369-01.

The notice and documents provided were consistent with License Condition 16. The documents provided May 10, 2001 confirm that the material is not a characteristic or listed hazardous waste under 6 CCR 1007-3-261. Although the documents provided June 12, 2001, contain few layout and spill control details (item 8 in the Division's June 1, 2001 letter), no health, safety or environmental protection amendment to License 369-01 requirements is necessary at this time. No further action under License Condition 16 is required.

The Division will likely inspect the layout and functions of the Vanadium Pilot Project soon after commencement of vanadium fusion operations. If you have any questions regarding your license, please contact Ken Weaver of this Division at (303) 692-3058.

W. Jacobi, Manager  
Radiation Services Program

WEJ:klkw



RECEIVED:  
COTTER CORP.  
Radiation Safety Dept.

AUG 10 2001

Distribution:

Cf: Jerry Goad, AGO  
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### Attachment B-Canon City Milling Facility Tailing Impoundment Contents

Material Name/ Location	Origin	Class	Date(s)	Tons Placed
<b>Primary Impoundment</b>				
<b>Processed Ores</b>				
White Water Ores	Colorado Mines	11.e(2)	1979-84	218,177
Thornburg Mine Ores	Utah Mine	11.e(2)	1979-84	39,612
Schwartzwalder Ore	Colorado Mine	11.e(2)	1984-2001	570,551
Sweeney Ore	Colorado Mines	11.e(2)	1977-84	253
Hartzel Ore	Colorado Mine	11.c(2)	1979	1,247
Martin Trost Ore	Colorado Mine	11.e(2)	1979-80	4,831
G.E. Seven Mile Ore	Utah Mine	11.e(2)	1979-84	40,849
Colorado Raffinate	Missouri Residue	11.e(2)	1985	439
USGS Material	Various, US	11.e(2)	2000	25
Cyprus Amax	Colorado Mill	11.e(2)	2000	653
Sequoyah Concentrates	Oklahoma-Gore Facility	11.e(2)	2002	NA <sup>1</sup>
Schwartzwalder Eluate	Colorado Mine	11.e(2)	1982-2002	NA <sup>1</sup>
Vanadium Scrubber Solutions	United Kingdom	Non-11.e(2)	2002	NA <sup>1</sup>
<b>Directly Disposed Material</b>				
Colorado Raffinate	Missouri Residue	11.e(2)	1996	9,600
Old Mill Disposed Volume	Colorado-CC Mill	11.e(2)	2001	15,276
Depot Cleanup	Colorado-CC Rail Loadout	11.e(2)	1994	20,000
Sand Creek Cleanup	Colorado-CC RAP	11.e(2)	1999	14,400
Nonac Site Cleanup	Colorado-CC Rail Loadout	11.e(2)	1999	96,000
Team Track Cleanup	Colorado-CC Rail Load out	11.e(2)	1999	40,000
Old Pond Soils RAP	Colorado-CC RAP	11.c(2)	1989	230,400
Old Mill Soils	Colorado-CC Mill	11.e(2)	2001	5,440
Old Pond Remedy Test Cells	Colorado-CC Mill	11.e(2)	2001	50,560
Old Pond Area Soils	Colorado-CC Mill	11.e(2)	2001	78,496
SCS Barrier Soils	Colorado-CC RAP	11.c(2)	1989	65,120
CSMRI Soils	Colorado-Table Mtn. Site	11.e(2)	2000	839
CSMRI 11.e(2) Yttrium Residues	Colorado-Table Mtn. Site	11.e(2)	2000	9,016
PD Tailings	Colorado-Amax R&D	11.e(2)	1999-2001	24,430
PD Affected Soils	Colorado-Amax R&D	11.e(2)	1999-2001	4,034
PD OYT Soils	Colorado-Amax R&D	11.e(2)	1999-2001	5,113
Schwartz Soils	Colorado-RML Cleanup	11.e(2)	1983-2002	29,037
Schwartz Uranium Recovery Sludge	Colorado-RML Sludges	11.e(2)	1983-2002	1,080
<b>Total-Primary Impoundment</b>				<b>1,575,478</b>
<b>Secondary Impoundment</b>				
Old Mill Transferred Tailings <sup>2</sup>	U.S. Mines	11.e(2)		2,386,261
DOE Contract Mines-Process Tailing	Colorado Mines	11.e(2)	Pre-1979	320,000
Congo/CO. Raffinates- Process Tailing	Missouri Residue	11.e(2)	Pre-1979	65,404
Metals Recovery Operations	U.S. Producers	Non-11.c(2)	Pre-1979	28,566
<b>Total-Secondary Impoundment</b>				<b>2,800,231</b>

<sup>1</sup> These materials did not contribute appreciably to the tailings mass. The Sequoyah Concentrates and Schwartzwalder Eluate were uranium concentrates and generated little, if any, tailing material. In the case of the Vanadium Scrubber solutions, 19,838 gallons reported to tailings where approximately 90% of the solution mass is lost to evaporation.

<sup>2</sup> Materials transferred from the "Old Ponds Area" to the Secondary Impoundment included underlying soils from the former unlined tailings area.